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T-870 P.020/041 F-181

Application No. 09/922,418

oxide), poly ortho esters, polycyanoacrylates, polyphosphazenes, polysulfone, polyamine, poly (amido amines), fibrin, graphite, flexible fluoropolymer, isobutyl-based polymers, isopropyl styrene polymers, vinyl pyrrolidone polymers, cellulose acetate dibutyrate, ~~and~~ silicone rubber, and combinations of these.

63. (Original) The electromatrix device of claim 50 wherein the current released drug delivery device is crosslinked with one or more crosslinking agents.

64. (Original) The electromatrix device of claim 63 wherein the one or more crosslinking reagents are selected from the group consisting of glutaraldehyde, p-Azidobenzoyl Hydrazide, N-5-Azido 2-nitrobenzoyloxysuccinimide, N-Succinimidyl 6-[4'azido-2'nitro-phenylamino]hexanoate and 4-[p-Azidosalicylamido] butylamine.

65. (Previously Presented) The electromatrix device of claim 50 wherein the one or more conductive materials are selected from the group consisting of gold, silver, aluminum, platinum, tungsten, stainless steel, nitinol, copper, niobium, titanium, and ceramics.

66. (Original) The electromatrix device of claim 50 wherein the one or more conductive materials comprises an alloy including one or more substances selected from the group consisting of gold, silver, tungsten, niobium, cobalt, titanium, zirconium, vanadium, molybdenum, nickel, iron, zinc, and copper.

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67. (Currently Amended) A method of making an electromatrix device, comprising the steps of:

- (a) preparing a coatable composition including the one or more biocompatible protein materials, one or more conductive materials, one or more pharmacologically active agents and the one or more biocompatible solvents;
- (b) coating the composition to form a film;
- (c) partially drying the coated film until the coated film can be formed into a non-brittle cohesive body;
- (d) forming said cohesive body; and compressing the cohesive body to form an electromatrix .

68. (Withdrawn) The method of making an electromatrix device of claim 67 wherein the conductive materials are not added until the coated film is partially dried.

69. (Withdrawn) The method of making an electromatrix device of claim 67 wherein the biocompatible proteins may be natural, synthetic or genetically engineered.

70. (Withdrawn) The method of making an electromatrix device of claim 68 wherein the biocompatible proteins may be natural, synthetic or genetically engineered.

71. (Withdrawn) The method of making an electromatrix device of claim 69 wherein the biocompatible proteins are natural proteins selected from the group consisting of elastin,

collagen, albumin, keratin, fibronectin, silk, silk fibroin, actin, myosin, fibrinogen, thrombin, aprotinin and antithrombin III.

72. (Withdrawn) The method of making an electromatrix device of claim 70 wherein the biocompatible proteins are natural proteins selected from the group consisting of elastin, collagen, albumin, keratin, fibronectin, silk, silk fibroin, actin, myosin, fibrinogen, thrombin, aprotinin and antithrombin III.

73. (Withdrawn) The method of making an electromatrix device of claim 69 wherein the biocompatible proteins are genetically engineered proteins made of blocks selected from the group consisting of elastinlike blocks, silklike blocks, collagenlike blocks, lamininlike blocks, fibronectinlike blocks and silklike and elastinlike blocks.

74. (Withdrawn) The method of making an electromatrix device of claim 70 wherein the biocompatible proteins are genetically engineered proteins made of blocks selected from the group consisting of elastinlike blocks, silklike blocks, collagenlike blocks, lamininlike blocks, fibronectinlike blocks and silklike and elastinlike blocks.

75. (Withdrawn) The method of making an electromatrix device of claim 67 wherein the biocompatible solvent is selected from the group consisting of water, dimethyl sulfoxide (DMSO), biocompatible alcohols, biocompatible acids, oils and biocompatible glycols.

76. (Withdrawn) The method of making an electromatrix device of claim 68 wherein the biocompatible solvent is selected from the group consisting of water, dimethyl sulfoxide (DMSO), biocompatible alcohols, biocompatible acids, oils and biocompatible glycols.
77. (Withdrawn) The method of making an electromatrix device of claim 75 wherein the biocompatible solvent is water.
78. (Withdrawn) The method of making an electromatrix device of claim 76 wherein the biocompatible solvent is water.
79. (Withdrawn) The method of making an electromatrix device of claim 67 wherein the one or more pharmacologically active agents are selected from the group consisting of analgesics, anesthetics, anti psychotic agents, steroids, antisteroids, corticosteroids, antiglaucoma agents, antialcohol agents, anticoagulants agents, genetic material, antithrombolytic agents, anticancer agents, anti-Parkinson agents, antiepileptic agents, anti-inflammatory agents, anticonception agents, enzymes agents, cells, growth factors, antiviral agents, antibacterial agents, antifungal agents, hypoglycemic agents, antihistamine agents, chemoattractants, nutraceuticals, antiobesity, smoking cessation agents and antiasmatic agents.
80. (Withdrawn) The method of making an electromatrix device of claim 68 wherein the one or more pharmacologically active agents are selected from the group consisting of analgesics, anesthetics, anti psychotic agents, steroids, antisteroids, corticosteroids, antiglaucoma agents, antialcohol agents, anticoagulants agents, genetic material, antithrombolytic agents, anticancer

agents, anti-Parkinson agents, antiepileptic agents, anti-inflammatory agents, anticonception agents, enzymes agents, cells, growth factors, antiviral agents, antibacterial agents, antifungal agents, hypoglycemic agents, antihistamine agents, chemoattractants, neutraceuticals, antiobesity, smoking cessation agents and antiasmatic agents.

81. (Withdrawn) The method of making an electromatrix device of claim 67, wherein the pharmacologically active agent comprises a second, migration-vulnerable drug delivery device.

82. (Withdrawn) The method of making an electromatrix device of claim 68, wherein the pharmacologically active agent comprises a second, migration-vulnerable drug delivery device.

83. (Withdrawn) The method of making an electromatrix device of claim 81, wherein the migration-vulnerable drug delivery device comprises a plurality of lipospheres, microspheres or a combination thereof homogeneously dispersed within the electromatrix device.

84. (Withdrawn) The method of making an electromatrix device of claim 82, wherein the migration-vulnerable drug delivery device comprises a plurality of lipospheres, microspheres or a combination thereof homogeneously dispersed within the electromatrix device.

85. (Withdrawn) The method of making an electromatrix device of claim 67, wherein the pharmacologically active agent is substantially homogeneously distributed within the electromatrix device.

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86. (Withdrawn) The method of making an electromatrix device of claim 68, wherein the pharmacologically active agent is substantially homogeneously distributed within the electromatrix device.

87. (Withdrawn) The method of making an electromatrix device of claim 67 further comprising one or more biocompatible polymeric materials.

88. (Withdrawn) The method of making an electromatrix device of claim 68 further comprising one or more biocompatible polymeric materials.

89. (Currently Amended) The method of making an electromatrix device of claim 87 wherein the one or more biocompatible polymeric materials are selected from the group consisting of epoxies, polyesters, acrylics, nylons, silicones, polyanhydride, polyurethane, polycarbonate, poly(tetrafluoroethylene), polycaprolactone, polyethylene oxide, polyethylene glycol, poly(vinyl chloride), polylactic acid, polyglycolic acid, polypropylene oxide, poly(alkylene)glycol, polyoxyethylene, sebacic acid, polyvinyl alcohol, 2-hydroxyethyl methacrylate polymers, polymethyl methacrylate, 1,3-bis(carboxyphenoxy)propane polymers, lipids, phosphatidylcholine, triglycerides, polyhydroxybutyrate, polyhydroxyvalerate, poly(ethylene oxide), poly ortho esters, ~~poly(amino acids)~~, polycyanoacrylates ~~polycyanoacrylates~~, polyphosphazenes, polysulfone, polyamine, poly(amido amines), fibrin, graphite, flexible fluoropolymer, isobutyl-based polymers, isopropyl styrene polymers, vinyl pyrrolidone polymers, cellulose acetate dibutyrate, silicone rubber, and ~~copolymers~~ combinations of these.

90. (Currently Amended) The method of making an electromatrix device of claim 88 wherein the one or more biocompatible polymeric materials are selected from the group consisting of epoxies, polyesters, acrylics, nylons, silicones, polyanhydride, polyurethane, polycarbonate, poly(tetrafluoroethylene), polycaprolactone, polyethylene oxide, polyethylene glycol, poly(vinyl chloride), polylactic acid, polyglycolic acid, polypropylene oxide, poly(alkylene)glycol, polyoxyethylene, sebacic acid, polyvinyl alcohol, 2-hydroxyethyl methacrylate polymers, polymethyl methacrylate, 1,3-bis(carboxyphenoxy)propane polymers, lipids, phosphatidylcholine, triglycerides, polyhydroxybutyrate, polyhydroxyvalerate, poly(ethylene oxide), poly ortho esters, ~~poly (amino acids)~~, polycyanoacrylates ~~polycyanoacrylates~~, polyphosphazenes, polysulfone, polyamine, poly (amido amines), fibrin, graphite, flexible fluoropolymer, isobutyl-based polymers, isopropyl styrene polymers, vinyl pyrrolidone polymers, cellulose acetate dibutyrate, silicone rubber, and ~~copolymers~~ combinations of these.

91. (Withdrawn) The method of making an electromatrix device of claim 67 wherein the current released drug delivery device is crosslinked with one or more crosslinking agents.

92. (Withdrawn) The method of making an electromatrix device of claim 68 wherein the current released drug delivery device is crosslinked with one or more crosslinking agents.

93. (Withdrawn) The method of making an electromatrix device of claim 91 wherein the crosslinking agents are selected from the group consisting of glutaraldehyde, p-Azidobenzoyl

Hydazide, N-5-Azido-2 nitrobenzoyloxysuccinimide, N-Succinimidyl

6-[4'azido-2'nitro-phenylamino]hexanoate and 4 [p-Azidosalicylamido] butylamine.

94. (Withdrawn) The method of making an electromatrix device of claim 92 wherein the one or more crosslinking reagents are selected from the group consisting of glutaraldehyde, p-Azidobenzoyl Hydazide, N-5-Azido 2-nitrobenzoyloxysuccinimide, N-Succinimidyl 6-[4'azido-2'nitro-phenylamino]hexanoate and 4-[p-Azidosalicylamido] butylamine.

95. (Withdrawn) The method of making an electromatrix device of claim 67 wherein the one or more conductive materials are selected from the group consisting of gold, silver, aluminum, platinum, tungsten, stainless steel, nitinol, copper, niobium, titanium, and ceramics.

96. (Withdrawn) The method of making an electromatrix device of claim 68 wherein the one or more conductive materials are selected from the group consisting of gold, silver, aluminum, platinum, tungsten, stainless steel, nitinol, copper, niobium, titanium, and ceramics.

97. (Withdrawn) The method of making an electromatrix device of claim 67 wherein the one or more conductive materials comprises an alloy including one or more substances selected from the group consisting of gold, silver, tungsten, niobium, cobalt, titanium, zirconium, vanadium, molybdenum, nickel, iron, zinc, and copper.

98. (Withdrawn) The method of making an electromatrix device of claim 68 wherein the one or more conductive materials comprises an alloy including one or more substances selected from



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the group consisting of gold, silver, tungsten, niobium, cobalt, titanium, zirconium, vanadium, molybdenum, nickel, iron, zinc, and copper.

99-132. (Canceled)

133. (Withdrawn) A protein matrix array comprising one or more biocompatible protein materials, zero or more pharmacologically active agents and one or more biocompatible solvents, wherein the protein materials, pharmacologically active agents and biocompatible solvents are compressed to remove bulk biocompatible solvent and generate additional interactive forces to form the protein matrix array.

134. (Withdrawn) A method of making a protein matrix array, comprising the steps of:

- (a) preparing a coatable composition comprising one or more biocompatible protein materials, zero or more pharmacologically active agents and one or more biocompatible solvents;
- (b) coating the composition to form a film;
- (c) partially drying the coated film until the coated film can be formed into a cohesive body;
- (d) forming said cohesive body; and compressing the cohesive body to form a protein matrix array.

135. (Withdrawn) A method of determining pharmacologically active agent to protein interaction comprising:

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(a) introducing a pharmacologically active agent to a protein matrix array comprising one or more biocompatible protein materials, zero or more pharmacologically active agents and one or more biocompatible solvents, wherein the protein materials, pharmacologically active agents and biocompatible solvents are compressed to remove bulk biocompatible solvent and generate additional interactive forces to form the protein matrix array;

(b) testing for pharmacologically active agent to protein interaction.

136. (Currently Amended) A protein matrix coated medical device comprising a medical device coated with a protein matrix material including one or more biocompatible protein materials and one or more biocompatible solvents, wherein the protein materials, and biocompatible solvents are formed into a non-brittle cohesive body prior to compression and the cohesive body is compressed with the medical device to remove bulk biocompatible solvent and generate additional interactive forces to form the protein matrix coated implantable medical device.

137. (Withdrawn) The protein matrix coated medical device of claim 136 wherein the biocompatible proteins may be natural, synthetic or genetically engineered.

138. (Withdrawn) The protein matrix coated medical device of claim 137 wherein the biocompatible proteins are natural proteins selected from the group consisting of elastin, collagen, albumin, keratin, fibronectin, silk, silk fibroin, actin, myosin, fibrinogen, thrombin, aprotinin and antithrombin III.

139. (Withdrawn) The protein matrix coated medical device of claim 137 wherein the biocompatible proteins are genetically engineered proteins made of blocks selected from the group consisting of elastinlike blocks, silklike blocks, collagenlike blocks, lamininlike blocks, fibronectinlike blocks and silklike and elastinlike blocks.

140. (Withdrawn) The protein matrix coated medical device of claim 136 wherein the biocompatible solvent is selected from the group consisting of water, dimethyl sulfoxide (DMSO), biocompatible alcohols, biocompatible acids, oils and biocompatible glycols.

141. (Withdrawn) The protein matrix coated medical device of claim 140 wherein the biocompatible solvent is water.

142. (Withdrawn) The protein matrix coated medical device of claim 136 wherein the protein matrix material further includes one or more pharmacologically active agents.

143. (Withdrawn) The protein matrix coated medical device of claim 142 wherein the one or more pharmacologically active agents are selected from the group consisting of analgesics, anesthetics, antipsychotic agents, steroids, antisteroids, corticosteroids, antiglaucoma agents, antialcohol agents, anti-coagulants agents, genetic material, antithrombogenic agents, anticancer agents, anti-Parkinson agents, antiepileptic agents, anti-inflammatory agents, anticonception agents, enzymes agents, cells, growth factors, antiviral agents, antibacterial agents, antifungal agents, hypoglycemic agents, antihistamine agents, chemoattractants, nutraceuticals, antiobesity, smoking cessation agents, obstetric agents and antiasmatic agents.

144. (Withdrawn) The protein matrix coated medical device of claim 142, wherein the pharmacologically active agents comprises a second, migration-vulnerable drug delivery device.

145. (Withdrawn) The protein matrix coated medical device of claim 144, wherein the migration-vulnerable drug delivery device comprises a plurality of lipospheres homogeneously dispersed within the protein matrix coating.

146. (Withdrawn) The protein matrix coated medical device of claim 144, wherein the migration-vulnerable drug delivery device comprises a plurality of microspheres homogeneously dispersed within the protein matrix coating.

147. (Withdrawn) The protein matrix coated medical device of claim 142, wherein the pharmacologically active agent is substantially homogeneously distributed within the protein matrix coating.

148. (Withdrawn) The protein matrix coated medical device of claim 136, further comprising one or more biocompatible polymeric materials.

149. (Currently Amended) The protein matrix coated medical device of claim 148 wherein the one or more biocompatible polymeric materials are selected from the group consisting of epoxies, polyesters, acrylics, nylons, silicones, polyanhydride, polyurethane, polycarbonate, poly(tetrafluoroethylene), polycaprolactone, polyethylene oxide, polyethylene glycol, poly(vinyl

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chloride), polylactic acid, polyglycolic acid, polypropylene oxide, poly(alkylene)glycol, polyoxyethylene, sebacic acid, polyvinyl alcohol, 2-hydroxyethyl methacrylate polymers, polymethyl methacrylate, 1,3-bis(carboxyphenoxy)propane polymers, lipids, phosphatidylcholine, triglycerides, polyhydroxybutyrate, polyhydroxyvalerate, poly(ethylene oxide), poly ortho esters, ~~poly (amino acids)~~, polycyanoacrylates ~~polycyanoacrylates~~, polyphosphazenes, polysulfone, polyamine, poly (amido amines), fibrin, graphite, flexible fluoropolymer, isobutyl-based polymers, isopropyl styrene polymers, vinyl pyrrolidone polymers, cellulose acetate dibutyrate, silicone rubber, and ~~copolymers~~ combinations of these.

150. (Withdrawn) The protein matrix coated medical device of claim 136 wherein the protein matrix material is crosslinked with one or more crosslinking agents.

151. (Withdrawn) The protein matrix coated medical device of claim 150 wherein the one or more crosslinking reagents are selected from the group consisting of glutaraldehyde, p-Azidobenzoyl Hydrazide, N-5-Azido 2-nitrobenzoyloxysuccinimide, N-Succinimidyl 6-[4'azido-2'nitro-phenylamino]hexanoate and 4-[p-Azidosalicylamido] butylamine.

152. (Withdrawn) The protein matrix coated medical device of claim 136 wherein the medical device is selected from the group consisting of heart pumps, drug delivery pumps, pacemakers, defibrillators, catheters, hearing aids, imaging and diagnostic devices, biosensor devices, Micro-Electronics Miniaturized Systems (MEMS), prosthetics, wires, leads, chips, grafts, stents, meshes, screens, electrodes, imaging devices, diagnostic devices, tissue barrier devices, tissue adhesive devices and antennae.

153. (Currently Amended) A method of making a protein matrix coated medical device, comprising the steps of:

- (a) preparing a coatable composition including the one or more biocompatible protein materials and the one or more biocompatible solvents;
- (b) forming a non-brittle cohesive body from the coatable composition prior to compression;
- (c) adding an implantable medical device to the cohesive body; and
- (d) compressing the cohesive body and the medical device to form the protein matrix coated medical device.

154. (Withdrawn) The method of making a protein matrix coated medical device of claim 153 wherein the biocompatible proteins may be natural, synthetic or genetically engineered.

155. (Withdrawn) The method of making a protein matrix coated medical device of claim 154 wherein the biocompatible proteins are natural proteins selected from the group consisting of elastin, collagen, albumin, keratin, fibronectin, silk, silk fibroin, actin, myosin, fibrinogen, thrombin, aprotinin and antithrombin III.

156. (Withdrawn) The method of making a protein matrix coated medical device of claim 154 wherein the biocompatible proteins are genetically engineered proteins made of blocks selected from the group consisting of elastinlike blocks, silklike blocks, collagenlike blocks, lamininlike blocks, fibronectinlike blocks and silklike and elastinlike blocks.

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157. (Withdrawn) The method of making a protein matrix coated medical device of claim 153 wherein the biocompatible solvent is selected from the group consisting of water, dimethyl sulfoxide (DMSO), biocompatible alcohols, biocompatible acids, oils and biocompatible glycols.

158. (Withdrawn) The method of making a protein matrix coated medical device of claim 157 wherein the biocompatible solvent is water.

159. (Withdrawn) The method of making a protein matrix coated medical device of claim 153 wherein the coatable composition further includes one or more pharmacologically active agents.

160. (Withdrawn) The method of making a protein matrix coated medical device of claim 159 wherein the one or more pharmacologically active agents are selected from the group consisting of analgesics, anesthetics, anti psychotic agents, steroids, antisteroids, corticosteroids, antiglaucoma agents, antialcohol agents, anticoagulants agents, genetic material, antithrombolytic agents, anticancer agents, anti-Parkinson agents, antiepileptic agents, anti-inflammatory agents, anticonception agents, enzymes agents, cells, growth factors, antiviral agents, antibacterial agents, antifungal agents, hypoglycemic agents, antihistamine agents, chemoattractants, neutraceuticals, antiobesity, smoking cessation agents and antiasthmatic agents.

161. (Withdrawn) The method of making a protein matrix coated medical device of claim 159, wherein the pharmacologically active agent comprises a second, migration-vulnerable drug delivery device.

162. (Withdrawn) The method of making a protein matrix coated medical device of claim 161, wherein the migration-vulnerable drug delivery device comprises a plurality of lipospheres, microspheres or a combination thereof homogeneously dispersed within the protein matrix coating.

163. (Withdrawn) The method of making a protein matrix coated medical device of claim 159, wherein the pharmacologically active agent is substantially homogeneously distributed within the protein matrix coating.

164. (Withdrawn) The method of making a protein matrix coated medical device of claim 153 further comprising one or more biocompatible polymeric materials.

165. (Currently Amended) The method of making a protein matrix coated medical device of claim 164 wherein the one or more biocompatible polymeric materials are selected from the group consisting of epoxies, polyesters, acrylics, nylons, silicones, polyanhydride, polyurethane, polycarbonate, poly(tetrafluoroethylene), polycaprolactone, polyethylene oxide, polyethylene glycol, poly(vinyl chloride), polylactic acid, polyglycolic acid, polypropylene oxide, poly(alkylene)glycol, polyoxyethylene, sebacic acid, polyvinyl alcohol, 2-hydroxyethyl methacrylate polymers, polymethyl methacrylate, 1,3-bis(carboxyphenoxy)propane polymers, lipids, phosphatidylcholine, triglycerides, polyhydroxybutyrate, polyhydroxyvalerate, poly(ethylene oxide), poly ortho esters, ~~poly(amino acids)~~, polycyanoacrylates, ~~polyeneacrylates~~, polyphosphazenes, polysulfone, polyamine, poly(amido amines), fibrin, graphite, flexible fluoropolymer, isobutyl-based polymers, isopropyl styrene polymers, vinyl



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pyrrolidone polymers, cellulose acetate dibutyrate, silicone rubber, and ~~copolymers~~ combinations of these.

166. (Withdrawn) The method of making a protein matrix coated medical device of claim 153 wherein the protein matrix coated medical device is crosslinked with one or more crosslinking agents.

167. (Withdrawn) The method of making a protein matrix coated medical device of claim 166 wherein the crosslinking agents are selected from the group consisting of glutaraldehyde, p-Azidobenzoyl Hydrazide, N-5-Azido-2 nitrobenzoyloxysuccinimide, N-Succinimidyl 6-[4'azido-2'nitro-phenylamino]hexanoate and 4 [p-Azidosalicylamido] butylamine.

168. (Withdrawn) The method of making a protein matrix coated medical device of claim 153 wherein the medical device is selected from the group consisting of heart pumps, drug delivery pumps, pacemakers, defibrillators, catheters, hearing aids, imaging and diagnostic devices, biosensor devices, Micro-Electronics Miniaturized Systems (MEMS), prosthetics, wires, leads, chips, grafts, stents, meshes, screens, electrodes, imaging devices, diagnostic devices, tissue barrier devices, tissue adhesive devices and antennae.

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